

REMARKS

The foregoing amendment does not attempt to enter new matter into the present application for invention. Therefore, the Applicants, respectfully, request that the above amendment be entered in and that the claims to the present application be, kindly, reconsidered.

The Office Action dated November 21, 2003 has been received and considered by the Applicants. Claims 1 through 20 are pending in the present application for invention. Claims 1 through 20 stand rejected by the April 24, 2003 Office Action.

The Office Action rejects claims 1 through 20 are rejected under the provisions of 35 U.S.C. §103 (a) as being obvious over U.S. Patent No. 5,848,121 issued in the name of Gupta et al. (hereinafter referred to as Gupta '121) in view of U.S. Patent No. 5,651,075 issued in the name of Frazier et al. (hereinafter referred to as Frazier et al.).

Regarding Claim 1, the Examiner states that Gupta '121 teaches the recited elements except for the combination of a first and second alignment. The Examiner also states that Frazier et al. illustrates combination of the first and second alignment by applying a Laplacian operator. The Applicant, respectfully, disagrees that the combination made by the Office Action results in the invention has recited by rejected Claim 1. The Applicant would like to direct the Examiner's attention to column 5, lines 9-13 of the cited reference, Frazier et al., wherein FIG. 4B and FIG. 4c of that reference are discussed. Frazier et al. clearly states that FIG. 4c is the result of the application of the Laplacian on the license plate image shown in FIG. 4b. There can be no question that the Laplacian operation performed by Frazier et al. is performed to enhance edges within a single image and not to align different images as asserted by the Office Action. Column 5, lines 1-9 of the cited reference, Frazier et al., clearly states that the Laplacian operation is performed to enhance edges. Simply put, the Laplacian operation is not performed to align to images as recited by rejected claim 1.

The MPEP at §2143.03 details the requirement to establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). "All words in a claim must be considered in judging the patentability of that claim against the prior art." *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970). If an independent claim is nonobvious under 35 U.S.C. §103, then any claim depending therefrom is nonobvious. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).

The rejection of Claim 1 contained in the Office Action recites the elements of rejected Claim 1 and makes the assertion that these elements are disclosed by various portions of the cited references. The Applicant would like to, respectfully, point out that the cited sections of these references do not contain all the elements cited by rejected Claim 1. As discussed above, Frazier et al., clearly states that the Laplacian operation is performed to enhance edges. The Office Action contends that the Laplacian operation taught by Frazier et al. illustrates the combination of the first and second alignment recited by rejected Claim 1 to the present invention. There is no disclosure, or suggestion, within Frazier et al., of first and second alignments. The Applicant would like to, respectfully, point out that Frazier et al. does not align two different images. Frazier et al. pertains to a single image that is enhanced. Rejected Claim 1 to present invention recites the "aligning the second image to the first image, based on the first alignment approximation, to form and initially align second image" and "aligning the second image to the first image, based on the combination of the first and second alignment approximations." These elements of rejected Claim 1 are not found in the combination made by the Office Action. Accordingly, this rejection is, respectfully, traversed.

Regarding rejected Claim 2 of the present invention that recites the "aligning the second image to the first image based on the combination of the first and second alignment approximations is effected by: aligning the initially aligned second image, which is based on the first alignment approximation, to the first image, based on the second alignment approximation," the Examiner asserts that these features recited by rejected Claim 2 of the present invention are disclosed by the cited prior art references. The Examiner states that Gupta '121, discloses all the features of Claim 2 except for the combination of the first and second alignment. Specifically, the Examiner states that Gupta '121, at column 2, lines 31-46 discloses the "aligning the second image to the first image based on the combination of the first and second alignment approximations is effected by: aligning the initially aligned second image, which is based on the first alignment approximation, to the first image, based on the second alignment approximation." Gupta '121, at column 2, lines 31-46 discloses match point generation of two-dimensional points in the mask image and their corresponding points in the opacified image. This portion of Gupta '121 teaches the generation of transformation function and a subtraction all rhythm used in the digital subtraction angiography taught by that reference. The Applicant would like to, respectfully, point out that cited section of Gupta '121 does not teach that the aligning the second

image to the first image is based on the combination of the first and second alignment approximations which in turn is effected by the aligning of the initially aligned second image, based on the first alignment approximation, to the first image, based on the second alignment approximation. This feature is not found in the cited portion of Gupta '121. Moreover, as discussed above, Frazier et al. does not align different images as asserted by the Office Action.

Claim 3 depends from Claim 1 and further narrows and defines Claim 1. Therefore, Claim 3 is believed to be allowable over the cited references.

Regarding claim 4, The Examiner states that Gupta '121 at column 2, lines 31-46 teach is applying the RANSAC algorithm to determine at least one of the first alignment and second alignment approximations. The Applicant would like to, respectfully, point out that Gupta '121, at column 2, lines 31-46 discloses match point generation of two-dimensional points in the mask image and their corresponding points in the opacified image. This portion of Gupta '121 teaches the generation of transformation function and a subtraction algorithm used in the digital subtraction angiography taught by that reference. There is no disclosure, or suggestion, within Gupta '121 for implementing RANSAC algorithm to determine at least one of the first alignment and second alignment approximations. Moreover, as discussed above, Frazier et al. does not align different images as asserted by the Office Action. Accordingly this rejection is, respectfully, traversed.

Regarding claimed 5, the Examiner states that Gupta '121, at column 3, lines 63-67 discloses "determining the first alignment approximation includes an approximation of the least one of a rotation component and a translation component in image space of the first and second images." The Applicant respectfully disagrees. Gupta '121, at column 3, lines 63-67 discloses that image tiles within two images can be rotated with respect to each other and that the mismatch arising because of such rotation can be corrected by the two-dimensional perspective transformation on user provided points. There is no disclosure, or suggestion, within Gupta '121 for determining a rotation component and a translation component in image space of the first and second images as recited by rejected Claim 5 to the present invention. Moreover, as discussed above, Frazier et al. does not align different images as asserted by the Office Action. Accordingly this rejection is, respectfully, traversed.

Regarding Claim 6 depends from Claim 5, which as previously discussed is believed to be allowable over the cited references, Claim 6 further narrows and defines claim by, therefore,

Claim 6 is also believed to be allowable. The Applicant would like to, respectfully, point out that there is no homographic matrix discussed within the cited references.

Regarding Claim 7 depends from Claim 1, which as previously discussed is believed to be allowable over the cited references, Claim 7 further narrows and defines claim 1, therefore, Claim 7 is also believed to be allowable. The Applicant would like to, respectfully, point out that there is no homographic matrix discussed within the cited references.

Regarding Claim 8 depends from Claim 1, which as previously discussed is believed to be allowable over the cited references, Claim 8 further narrows and defines claim 1, therefore, Claim 8 is also believed to be allowable.

Regarding the rejection of Claim 9 to the present invention contained in the Office Action, the Examiner states that the cited prior art reference, Gupta '121, teaches them into the track and object based out of first image and a second image and a step of aligning the first and second images to form a set of aligned images and detecting motion by comparing a set of aligned images in column 1, lines 58-67 and column 2, lines 23-30 of that reference. The Applicant, respectfully, submits that column 2, lines 23-30 of Gupta '121 does not teach them into the track and object based on first and second images as the Office Action asserts. Additionally, column 1, lines 58-67 of Gupta '121 does not teach aligning the first and second images to form a set of aligned images as asserted by the Office Action. Moreover, as discussed above, Frazier et al. does not align different images as asserted by the Office Action. Accordingly this rejection is, respectfully, traversed.

Claim 10 depends from and further narrows and defines Claim 9 which is previously discussed is believed to be global over the cited references. Therefore, Claim 10 is also believed to be allowable over the cited references. Accordingly, this rejection is respectfully traversed.

Regarding claim 11, the Examiner states that Gupta '121 teaches that x-ray images can be seen usually in gray, black or white. The Examiner has taken the position of that gray, black or white as discussed in Gupta '121 can be read on the recitation of "identifying the objects in the set of aligned images based on color matching" as recited by rejected Claim 11. The Applicant respectfully disagrees. Gray, black or white are not colors. Furthermore Claim 11 depends from Claim 9 which as previously discussed is believed to be allowable over the cited references, therefore, Claim 11 is also believed to be allowable over the cited references. Accordingly, this rejection is, respectfully, traversed.

Regarding the rejection of Claim 12, the Examiner states that Frazier et al. alignment by applying a Laplacian operator. As previously discussed, Frazier et al. does not teach alignment by application of a Laplacian operator but instead teach is enhancement by application of a Laplacian operator. Rejected Claim 12 recites determining a location of the object in each of the set of aligned images and determining a movement of the objects by comparing a location of the object in each image. As previously discussed, Frazier et al. does not have a set a images but only a single image that is enhanced. Accordingly this rejection is, respectfully, traversed.

Regarding Claim 13, the Examiner states that Gupta '121 teaches the elements of the claimed invention except for the combination of the first and second alignment which is taught by Frazier et al. As discussed above, Frazier et al. does not align different images as asserted by the Office Action. Accordingly this rejection is, respectfully, traversed.

Claim 14 depends from Claim 13, which is believed to be allowable. Claim 14 further narrows and defines Claim 13, therefore Claim 14 is also believed to be allowable.

Regarding claim 15, which depends from claim 13 in further narrows and defines claim 13, since claim 13 is believed the allowable claim 15 is also believed to be allowable over the cited references.

Regarding claim 16, the Applicant would like to, respectfully, point out that rejected Claim 16 to present invention recites a memory for storing the representation of a target image and a processor being configured to identify a target within the set of aligned images based on the representation of the target image. There is a specific relationship recited by rejected Claim 16 between the processor, memory and a target image. This relationship is not mentioned by the rejection contained in the Office Action. The Applicant, respectfully, submits that the features recited by rejected Claim 16 are not addressed by the rejection contained in the Office Action. Accordingly, this rejection is, respectfully, traversed.

Regarding rejected claim 17 to present invention, claim 17 depends claim 16 and further includes the representation of the target image as based on color content of the target image. The rejection contained within the office action does not invention color content, but instead reiterates the same rejection that was used on numerous of the previously discussed claims. The rejection to claim 17 contained within the Office Action does not address color content. Therefore this rejection is respectfully traversed.

Regarding the rejection to Claim 18 contained within the Office Action, the Examiner

states that Frazier et al. specifies the movement of an object. The Examiner has used the statements in an attempt to read upon the recitation contained within rejected Claim 18 of determining a location of an objects in each image of a set of aligned images and determining a movement of an objects by comparing a location of the object in each image As previously discussed, Frazier et al. does not align different images as asserted by the Office Action. Frazier et al. only has a single image that is enhanced. Accordingly this rejection is, respectfully, traversed.

Claim 19 depends from Claim 13, which as previously discussed is believed to be allowable over the cited references. Claim 19 further narrows and defines Claim 13. Therefore, claim 19 is also believed to be allowable over the cited references.

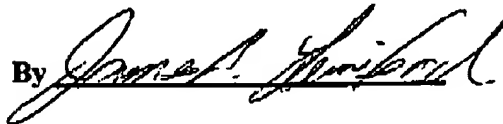
Regarding claim 20, which depends correctly from claim 19 and indirectly from claim 13 and further narrows and defines these claims, which as previously discussed are believed to be allowable. Therefore, Claim 20 is also believed to be allowable. Additionally no homographic matrices are discussed in the cited references.

Claim 15 is rejected under the provisions of 35 U.S.C. §112, second paragraph, has been indefinite for failing to particularly point out distinctly claim the subject matter of the invention. Specifically the term "or" use within including one or cameras is stated by the Examiner as being indefinite. The Applicant does not concur. The Examiner is taking a section of the MPEP out of context. However, in an effort to move the present application towards allowance, Claim 15 has been amended to recite "at least one camera".

Applicant is not aware of any additional patents, publications, or other information not previously submitted to the Patent and Trademark Office which would be required under 37 C.F.R. 1.99.

In view of the foregoing amendment and remarks, the Applicants believe that the present application is in condition for allowance, with such allowance being, respectfully, requested.

Respectfully submitted,

By 

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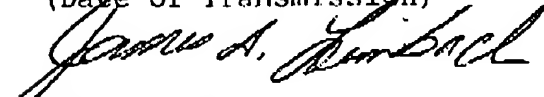
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